

WHAT IS CLAIMED IS:

1. A method of fabricating semiconductor devices, using a semiconductor processing system having at least one light processing apparatus and at least one vacuum processing apparatus, said method comprising:

processing a substrate by one of said at least one vacuum processing apparatus;

transporting said substrate from said one of said at least one vacuum processing apparatus into one of said at least one light processing apparatus without exposing said substrate to outside air; and

processing said substrate by a light in said one of said at least one light processing apparatus.

2. The method of claim 1 wherein said at least one vacuum processing apparatus is any one or more of a film formation apparatus, an etching apparatus, a doping apparatus, and a thermal processing apparatus.

3. The method of claim 1 wherein said light is a laser light or an infrared light.

4. The method of claim 1 wherein said at least one vacuum processing apparatus is a plasma CVD apparatus, a sputtering apparatus, a thermal CVD apparatus, a vacuum evaporation apparatus, a plasma doping apparatus, an ion implantation apparatus, a thermal diffusion apparatus or a thermal crystallization apparatus.

5. The method of claim 1 wherein said at least one light processing apparatus is a laser etching apparatus, a laser annealing apparatus or a laser doping apparatus.

6. The method of claim 1 wherein the transportation of said substrate from said one of said at least one vacuum processing apparatus into said one of said at least one light processing apparatus is carried out through a preliminary chamber provided therebetween.

7. The method of claim 1 wherein said light is irradiated to said substrate with said substrate being moved relative to said light.

Sub B1  
0 ✓ 8. An apparatus for processing a semiconductor provided on a substrate comprising:

an irradiation apparatus for irradiating a light to said semiconductor therein;

a vacuum apparatus for a vacuum processing; and

a mechanism for transporting said substrate from said vacuum apparatus to said irradiation apparatus without exposing said substrate to outside air.

0 ✓ 9. The apparatus of claim 8 wherein said irradiation apparatus is a laser etching apparatus, a laser annealing apparatus or a laser doping apparatus.

0 ✓ 10. The apparatus of claim 8 wherein said light is a laser light or an infrared light.

Sub B2  
0 ✓ 11. The apparatus of claim 8 wherein said vacuum apparatus is a plasma CVD apparatus, a sputtering apparatus, a thermal CVD apparatus, a vacuum evaporation apparatus, a plasma doping apparatus, an ion implantation apparatus, a thermal diffusion apparatus, a thermal crystallization apparatus or an etching

apparatus.

Sub B2  
12. The apparatus of claim 8 further comprising a laser for emitting a laser light wherein the emitted laser light is introduced into said irradiation apparatus through a window provided in a wall of said irradiation apparatus.

13. The apparatus of claim 8 wherein said irradiation apparatus comprises a holder for holding said substrate therein, and said holder can be moved relative to said light.

X 14. The apparatus of claim 8 further comprising a preliminary chamber between said irradiation apparatus and said vacuum apparatus wherein the transportation of said substrate from said vacuum apparatus to said irradiation apparatus is carried out through said preliminary chamber.

Sub F1  
15. The apparatus of claim 14 wherein said vacuum apparatus, said irradiation apparatus and said preliminary chamber can be evacuated.

X 16. An apparatus for processing a semiconductor provided on a substrate comprising:

a preliminary chamber;

Sub B3  
a light processing apparatus connected with said preliminary chamber;

an ion introducing apparatus connected with said preliminary chamber; and

an etching apparatus connected with said preliminary chamber.

17. The apparatus of claim 16 wherein said light processing

apparatus is a laser processing apparatus.

<sup>4</sup> 18. The apparatus of claim ~~16~~ wherein said ion introducing apparatus is a plasma doping apparatus.

<sup>5</sup> SUB J3 > 19. The apparatus of claim ~~16~~ further comprising a chamber, connected with said preliminary chamber, for introduction and takeout of said substrate.

<sup>6</sup> 20. The apparatus of claim ~~16~~ further comprising a magic hand for transporting said substrate into said preliminary chamber, said light processing apparatus, said ion introducing apparatus, and said etching apparatus.